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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/662,397 | 09/16/2003 | Minoru Usui | Q77369 | 1476 |
| 23373 | 7590 | 07/08/2005 | EXAMINER | |
| SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | JACKSON, ANDRE K | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2856 | |

DATE MAILED: 07/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,397

Applicant(s)

USUI ET AL.

Examiner

André K. Jackson

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-34, 45 and 46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23 and 28-34 is/are allowed.
- 6) ☒ Claim(s) 20-22, 45 is/are rejected.
- 7) ☒ Claim(s) 24-27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pfeiffer in view of Murata et al.

Regarding claim 20, Pfeiffer discloses in the patent entitled "Liquid container having a liquid consumption device therein" a measurement circuit segment for measuring a residual vibration of the detection device; and a detection circuit segment receiving a signal from the measurement circuit segment and outputting a signal indicative of the consumption status of the liquid contained in the liquid container on the basis of the output signal of said measurement circuit segment (Column 2, lines 17-35; Figure 1). Pfeiffer does not disclose where the detection device includes an actually vibrating part facing a cavity, which defines the vibration of the liquid. However, Murata et al. disclose in the patent entitled "Device for

detecting level of picture forming material” a cavity and where the cavity is disposed at a position facing the actually vibrating part (Abstract, Figure; 11b). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Pfeiffer to include where the detection device includes an actually vibrating part facing a cavity, which defines the vibration of the liquid. By adding this feature the apparatus would be in direct exposure to the material and this would give an accurate level detection.

Regarding claim 21, Pfeiffer discloses where the measurement circuit segment measures a frequency of the residual vibration of the detection device (Column 2).

Regarding claim 22, Pfeiffer discloses where the measurement circuit segment measures at least one resonance frequency of the liquid surrounding the detection device (Column 2).

3. Claims 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pfeiffer in view of Murata et al. and in further view of Wimmer et al.

Regarding claim 45, Pfeiffer does not disclose where the liquid container is an ink cartridge for an inkjet printer. However, Wimmer et al. disclose in the patent entitled “Ink level sensor” where the liquid container is an ink cartridge for an inkjet printer (Column 3). Therefore, it would

have been obvious to one of ordinary skill in the art at the time the invention was made to modify Pfeiffer to include where the liquid container is an ink cartridge for an inkjet printer. By adding this feature the user would be able to continuously and accurately measure the ink within the ink reservoir.

Regarding claim 46, Pfeiffer does not disclose where a node of the vibration of the detection device is located on the periphery of the cavity. However, Wimmer et al. disclose where a node of the vibration of the detection device is located on the periphery of the cavity (Figures 5&6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Pfeiffer to include where a node of the vibration of the detection device is located on the periphery of the cavity. By adding this feature the apparatus would be able to provide a feedback signal representative of continuous changes in the level of the reservoir.

4. Claims 23 and 28-34 are allowed.
5. Claims 24-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to claims 20-22 have been considered but are moot in view of the new grounds of rejection.
7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone

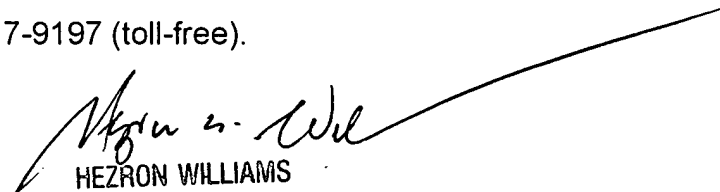
number is (571) 272-2196. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.J.

June 28, 2005


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800